

Outline

- GN-DOE mandate
- Monitoring activities
- Management
- Researches activities
- Knowledge gaps



GN DOE mandate

The DOE Wildlife Management division has a legislated mandate for the management of terrestrial wildlife species in Nunavut, including on-going responsibility for the co-management of Nunavut wildlife as obligated under the NLCA.

Objectives

The objectives of the Wildlife Management division are to:

- Provide up-to-date information from various sources;
- Develop wildlife management plans with co-management partners in order to protect wildlife populations;
- Provide support and resources to co-management partners and harvesters;
- Ensure legislative and regulatory compliance through education and enforcement.



GN DOE mandate

One of the primary goals of the Department of Environment (GN DOE) is to achieve a balanced approach to wildlife management that uses both science and Inuit Qaujimagatuqangit (IQ).

In all the three regions, there is a complex system of monitoring that merge science and IQ. All the research programs have been consulted, are involving communities and are currently running.

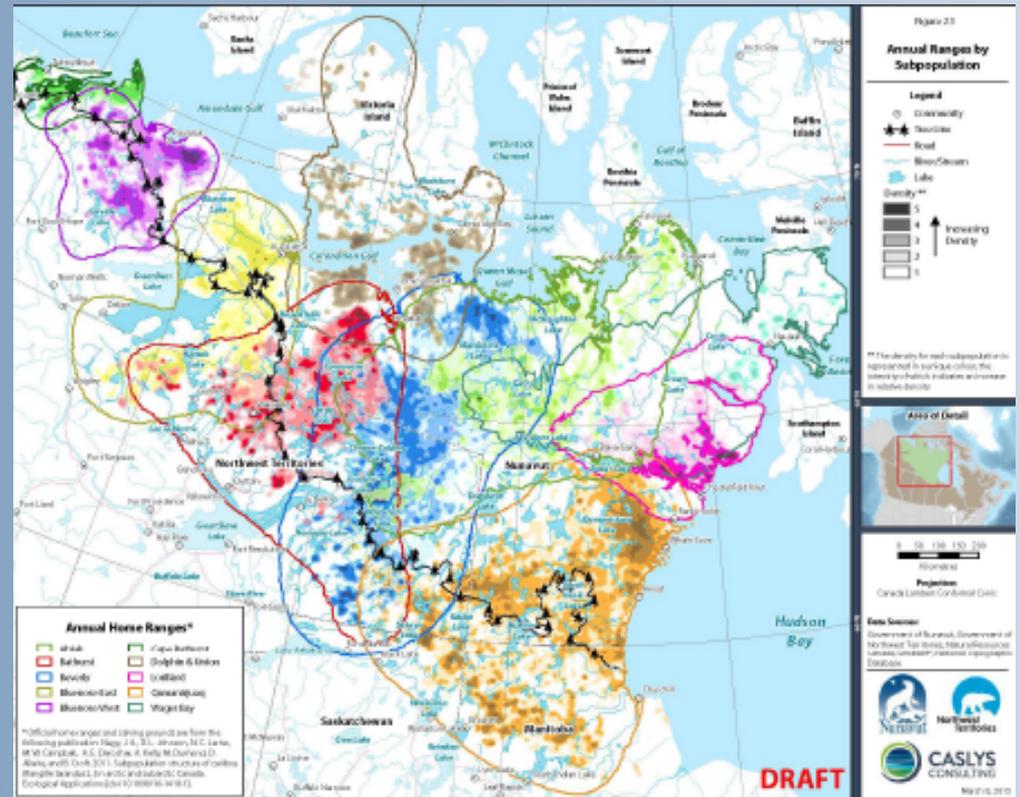


Monitoring Caribou –

Geographical distribution of barren-ground and tundra wintering caribou herd. Portions of ranges extend into Yukon Territory, Alberta, Saskatchewan and Manitoba .

Responsible for monitoring:

- Population abundance and trend
- Population distribution and range



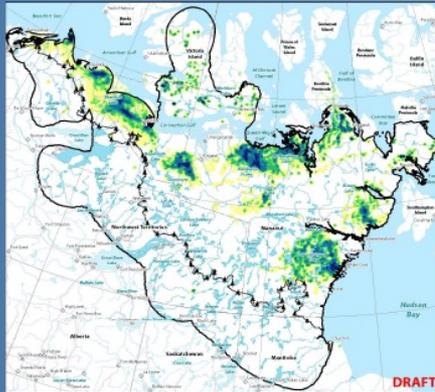
Barren-ground, tundra wintering herds and Dolphin and Union distribution based on compiled collar information.

Monitoring Caribou –

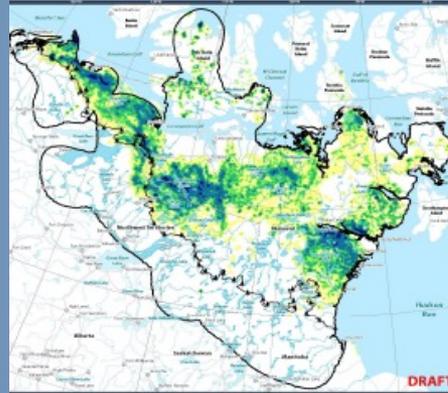


Barren-ground, tundra wintering herds and Dolphin and Union distribution and calving grounds based on compiled collar information. Population trend graphs show for the Bluenose-East, Dolphin and Union, Bathurst, Beverly and Qamanirjuaq. Note that the Ahiak have been surveyed in 2011 where the population estimate was around 70,000 caribou.

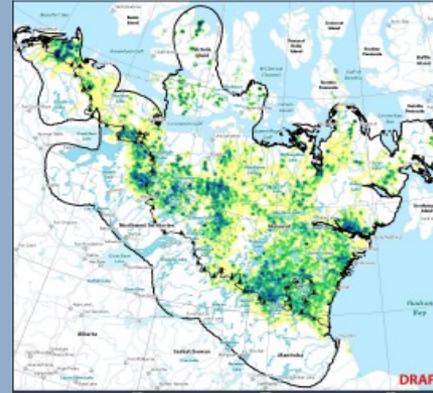
Monitoring- Caribou habitat



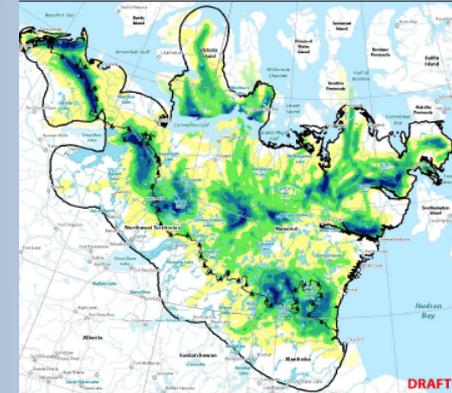
Post-Calving



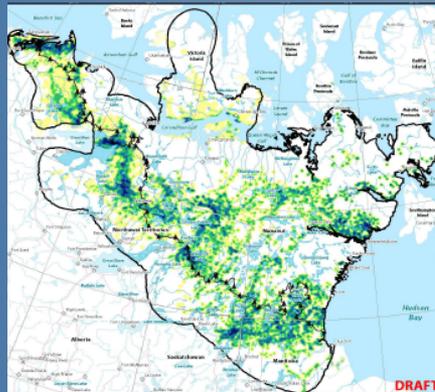
Early Summer



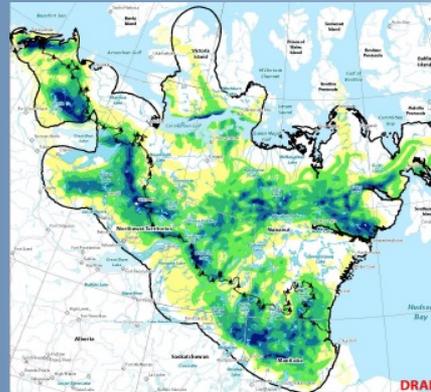
Late Summer



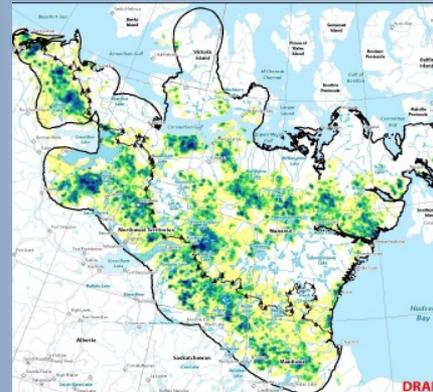
Fall Migration
Pre-breeding



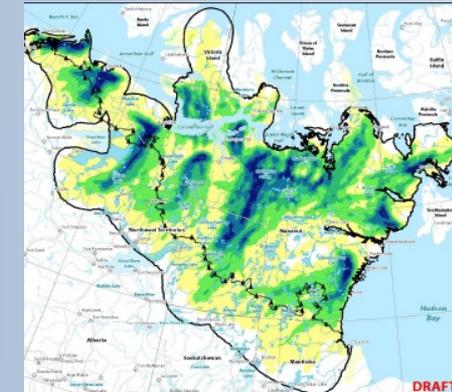
Rut-Breeding



Fall Migration
Post -Breeding

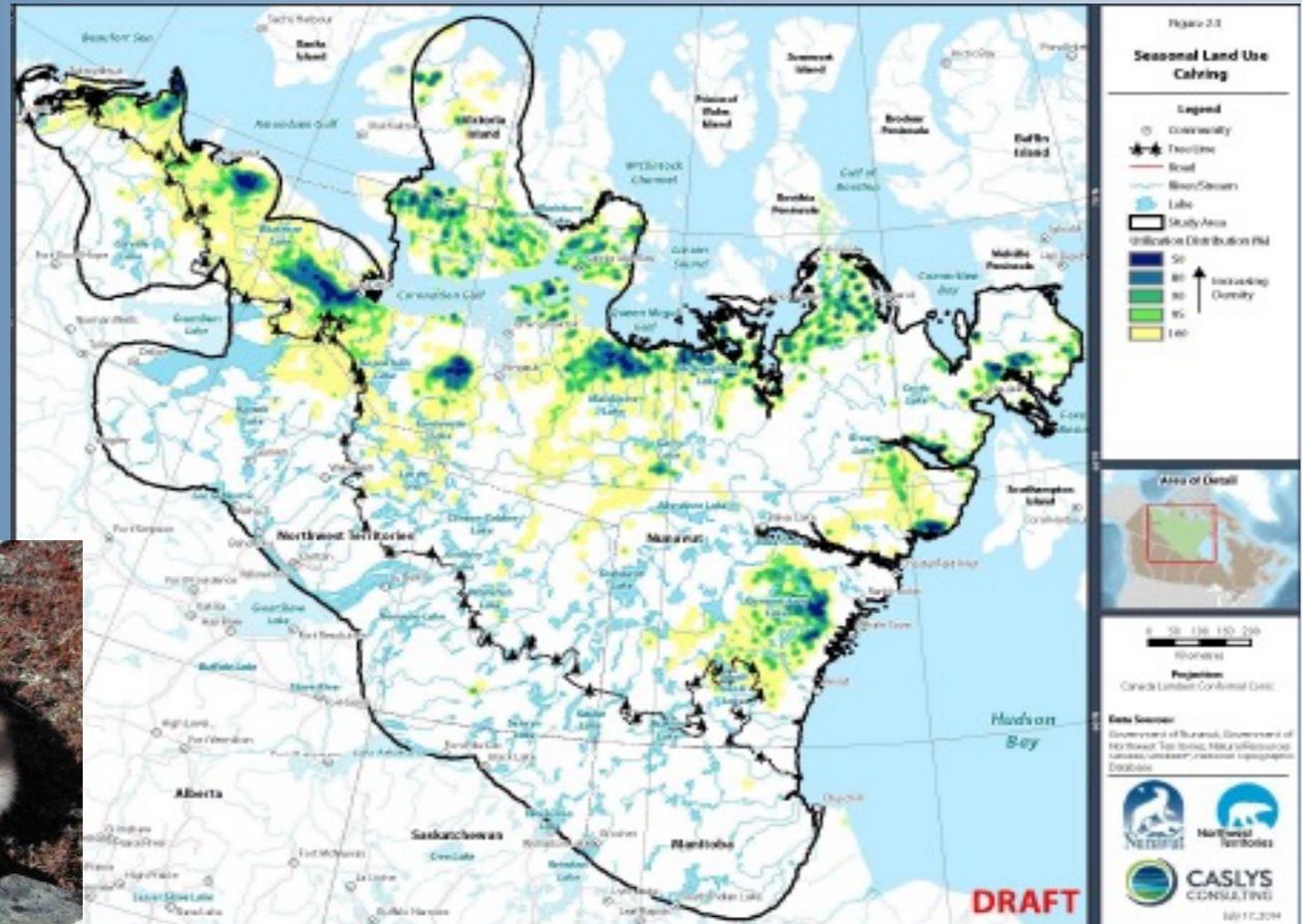


Winter



Spring Migration
Pre -Breeding

Monitoring Caribou –



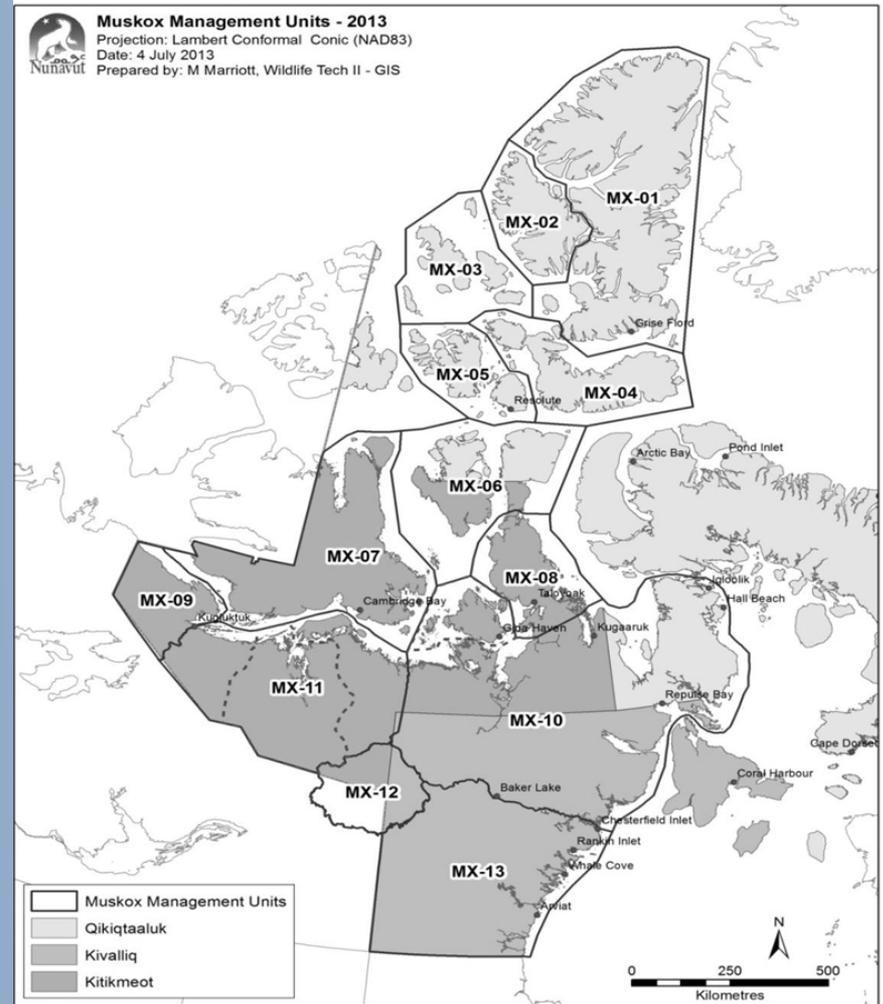
Barren-ground, tundra wintering herds and Dolphin and Union calving grounds based on compiled collar information.

Monitoring Muskox –

The Kitikmeot Region is involved in the monitoring and research activities of 7 muskox populations.

Responsible for monitoring:

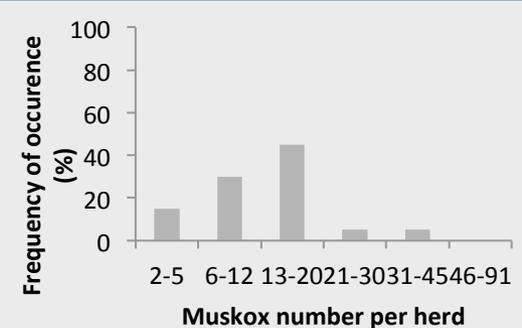
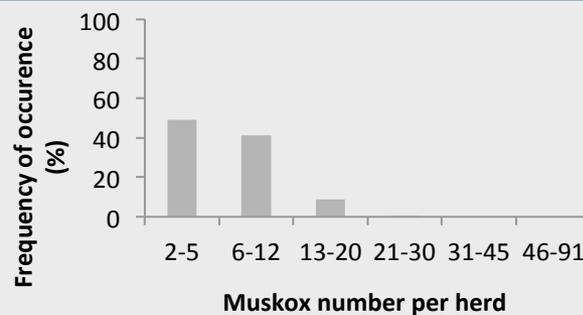
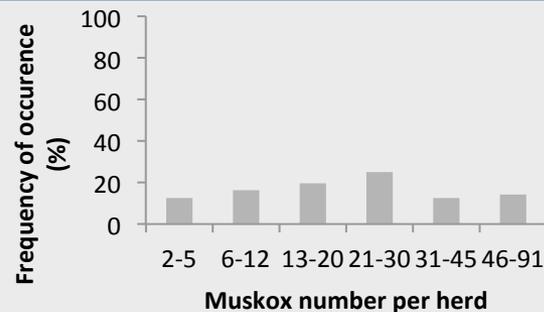
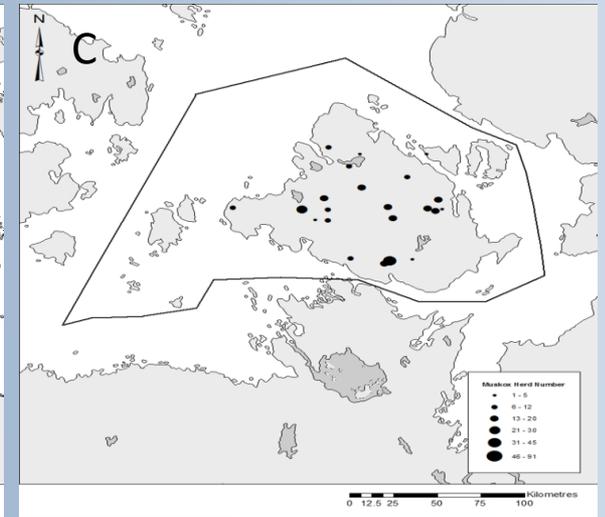
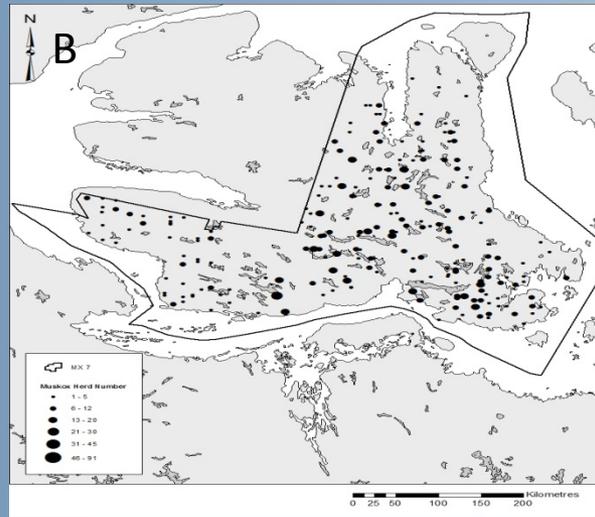
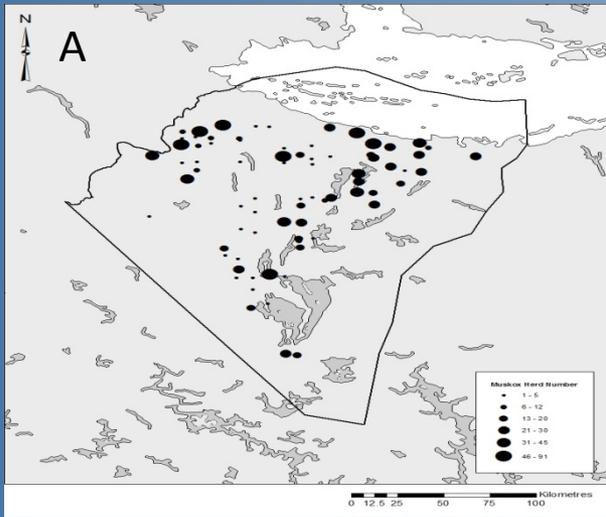
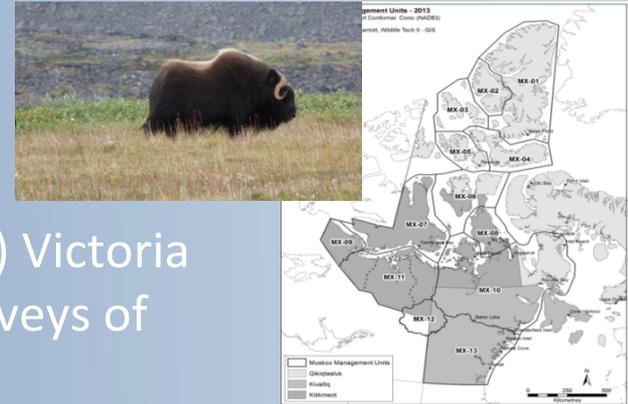
- Population abundance and trend
- Population distribution and range



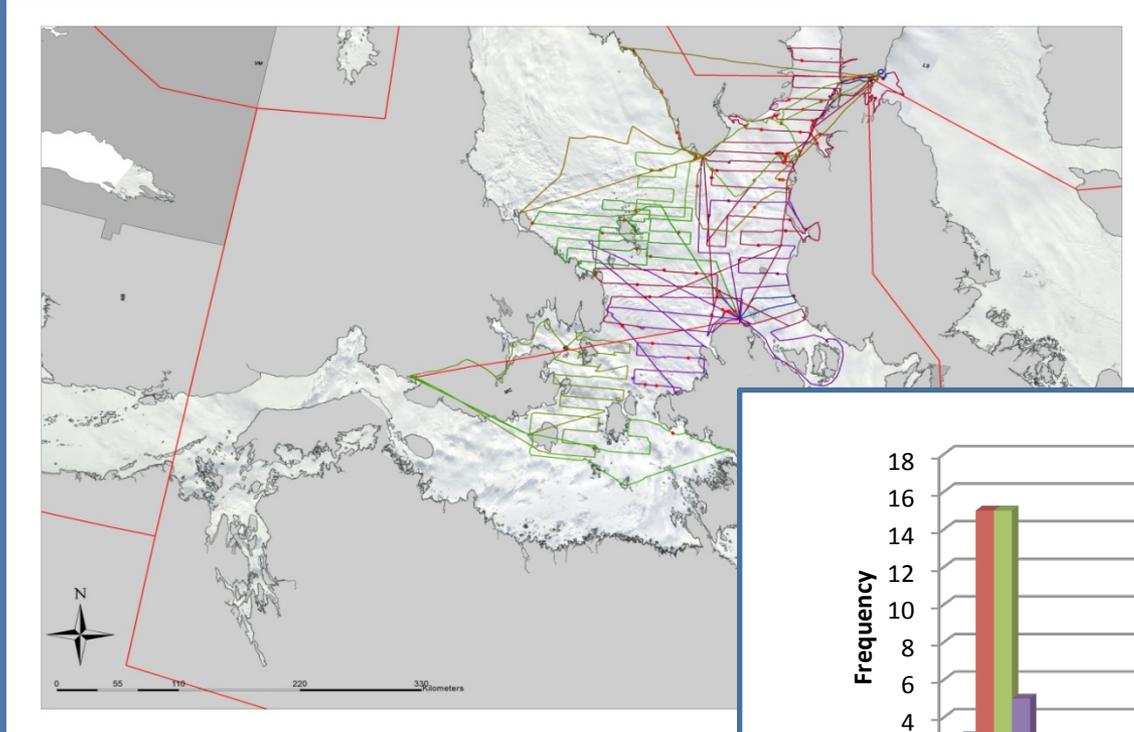
The 13 muskox management units in Nunavut. The different regions Qikiqtaaluk, Kivalliq and Kitikmeot are represented with a lighter to darker color respectively.

Monitoring Muskox –

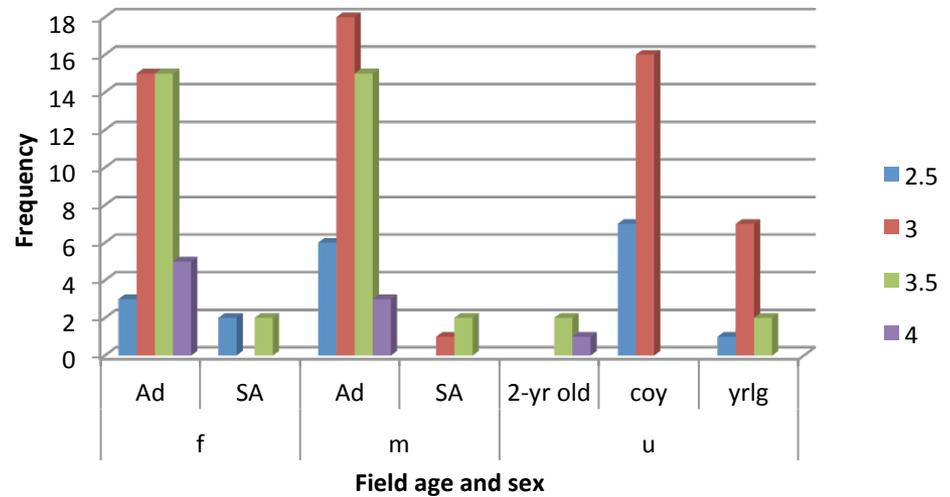
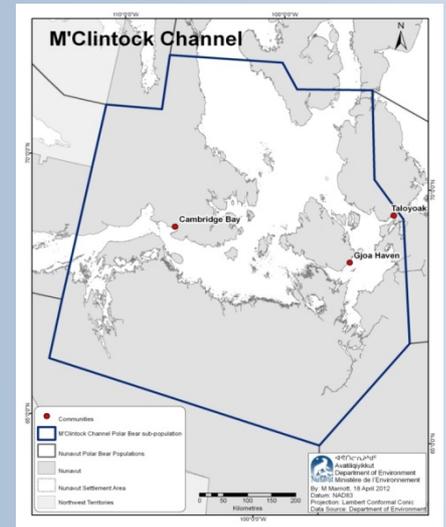
Muskox distribution and group size in A) Kugluktuk, B) Victoria Island and C) in King William Island from the areal surveys of 2013 and 2014.



Monitoring Polar Bear –

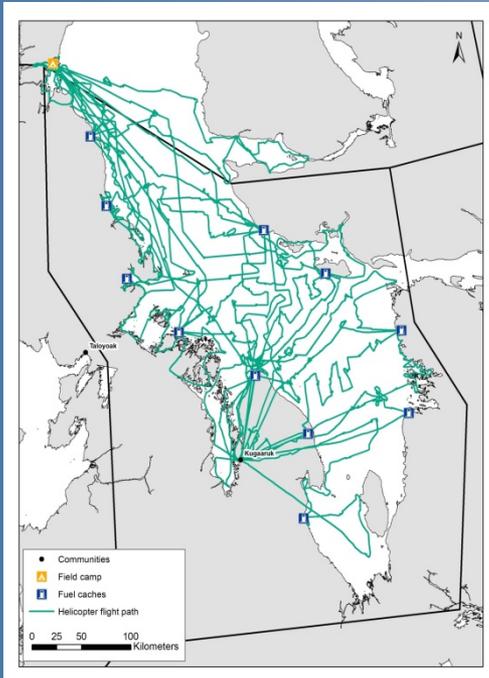


Locations of individual and groups of polar bears encountered during May - June 2015 in M'Clintock Channel (red dots). The lines represent the daily search tracks (NASA/MODIS satellite image 21 May 2015; blue dot represents a brown bear).

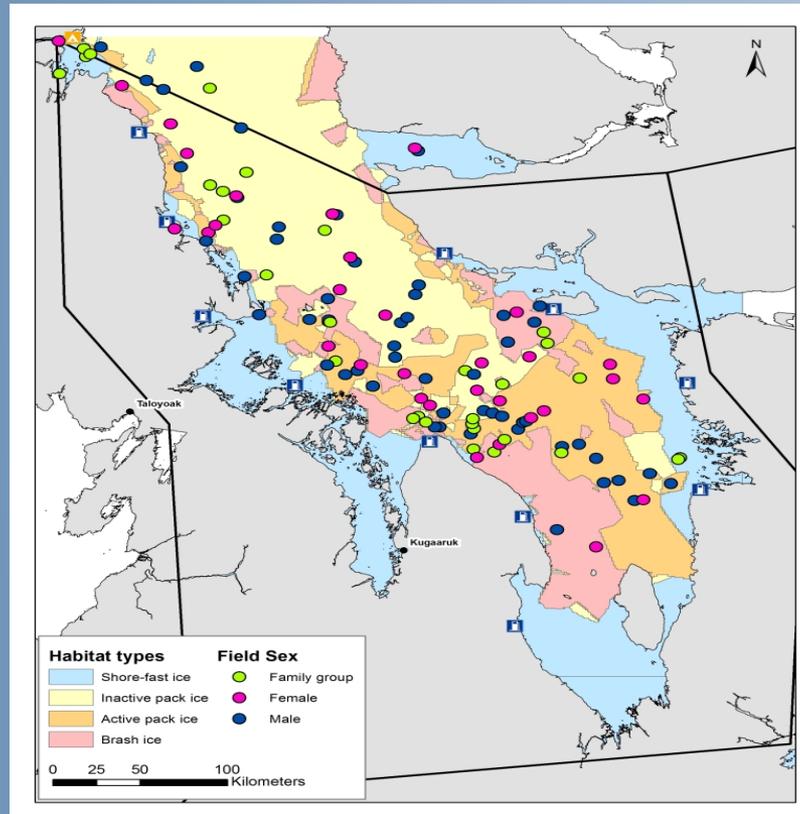


Summary of body condition scores (BCS) for polar bears encountered during sampling in M'Clintock Channel (Nunavut) 2015. Age and sex estimated by distance examination [NB: f = female; m = male; Ad = adult; SA = subadult; u = unknown gender; coy = cub of the year; yrlg = yearling].

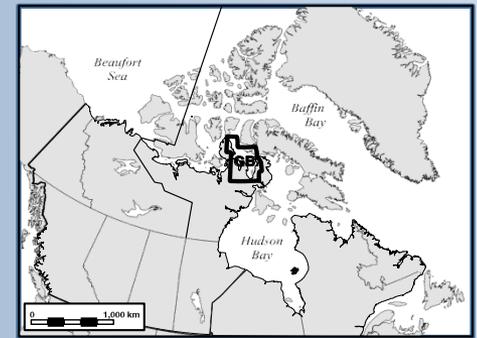
Monitoring Polar Bear –



Helicopter track log and location of camp and fuel caches used to search for the entire Gulf of Boothia polar bear subpopulation.



The distribution of habitat type and the locations of polar bear sightings during our 2015 survey of the Gulf of Boothia subpopulation are depicted. The habitat classification, through the whole Gulf of Boothia subpopulation area, result from IDW interpolation.



Habitat mapping– ELC Kivalliq

- Ecological Land Classification mapping for the Kivalliq Region in Nunavut
- Provides base level information for planning and research objectives
 - Resource selection function analysis
 - Habitat analysis
 - Ecotone studies

Information collected:

Moisture Regime Landform/
Topography

Surficial Expression

Substrate

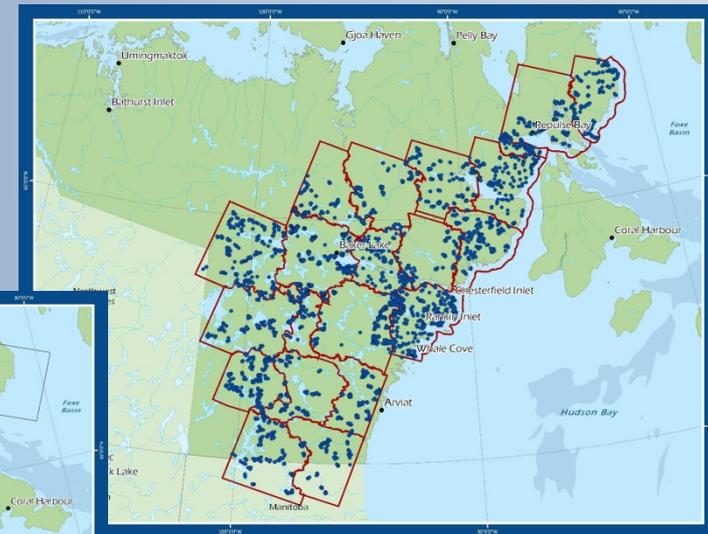
Land cover details

Vegetation Species (composition
and %)

Aerial, oblique and detailed
photos

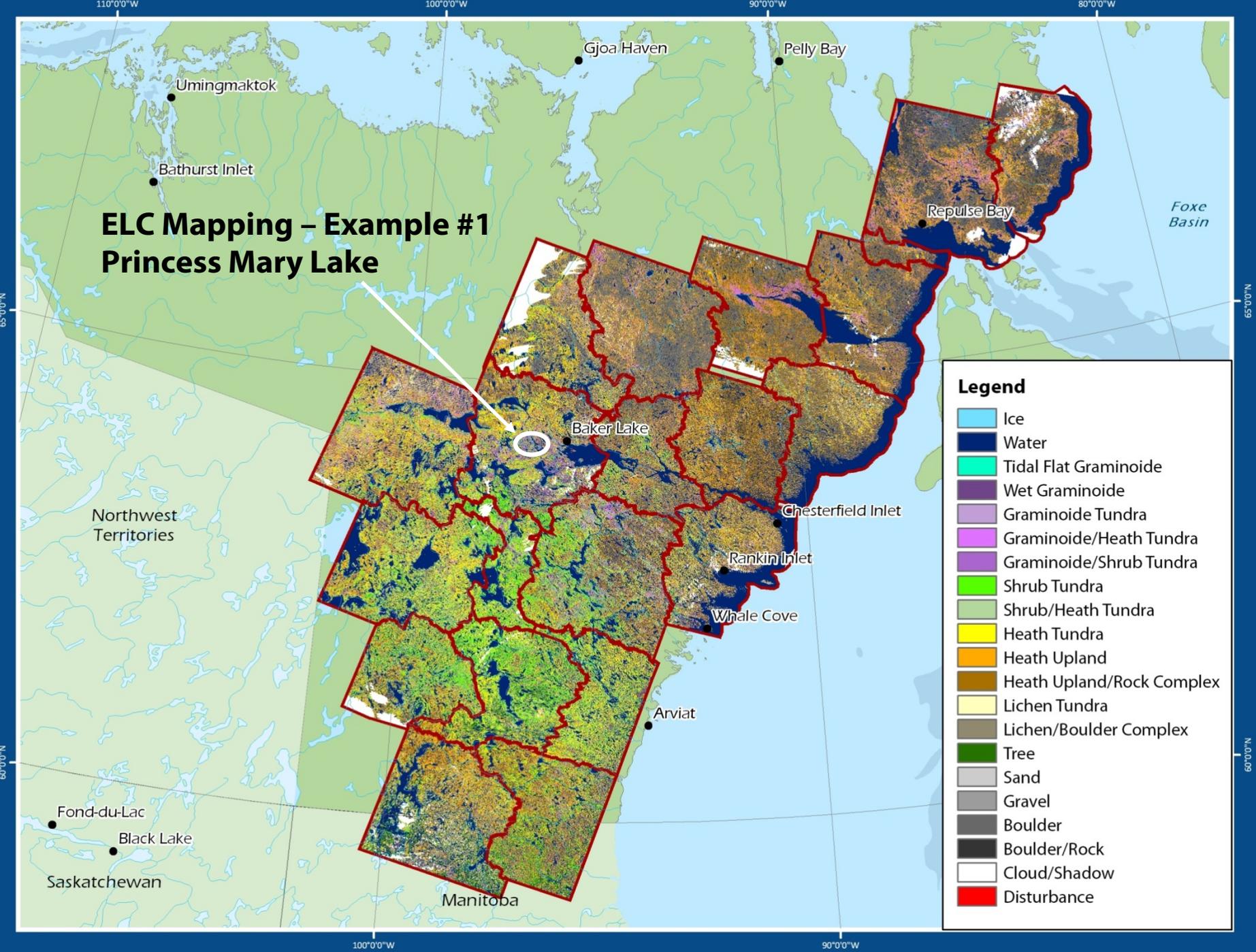


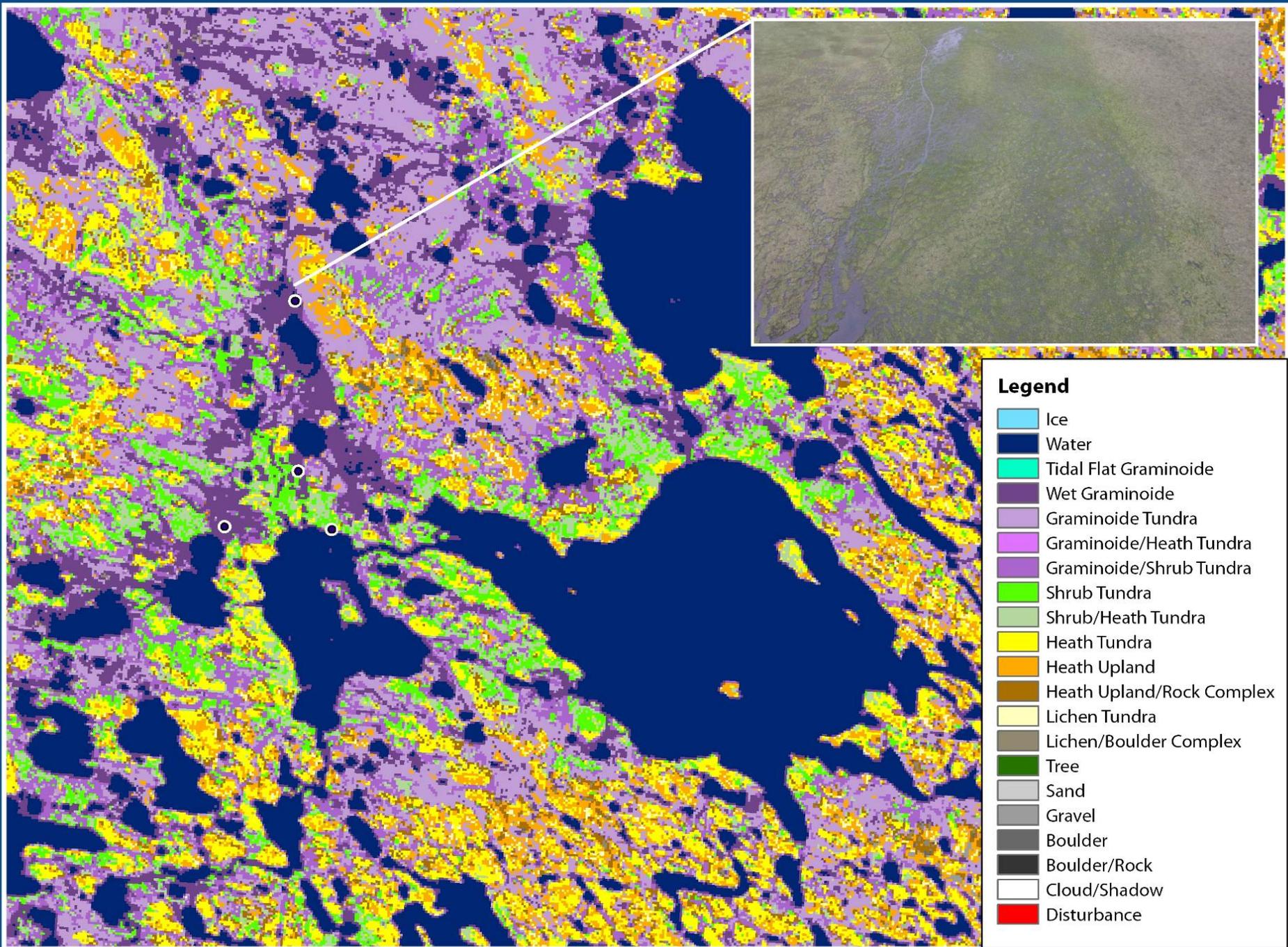
Landsat Imagery Footprints (21 scenes)



ELC Field Survey Locations 2976
samples

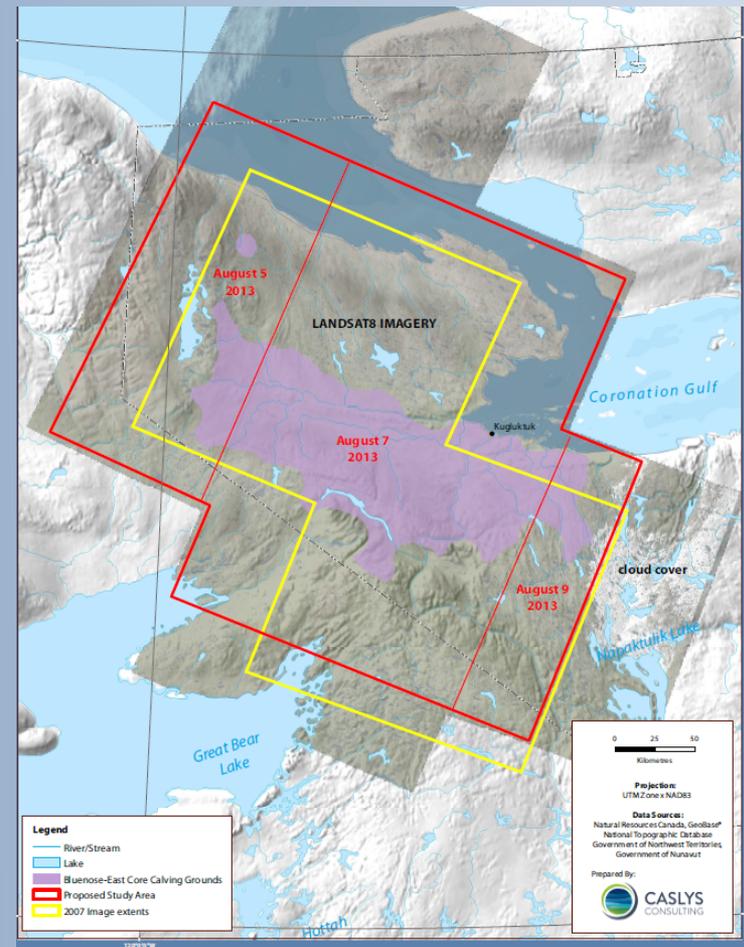
ELC Mapping – Example #1 Princess Mary Lake





Habitat mapping– ELC Kitikmeot

- Ecological Land Classification mapping for the Kitikmeot Region in Nunavut
- Provides base level information for planning and research objectives
 - Resource selection function analysis
 - Habitat analysis
 - Ecotone studies
- With the ECL of the Kivalliq and the Kitikmeot, a resource selection function analysis will be done using caribou collar locations and vegetation classification to identify caribou habitat.



Wildlife Management –

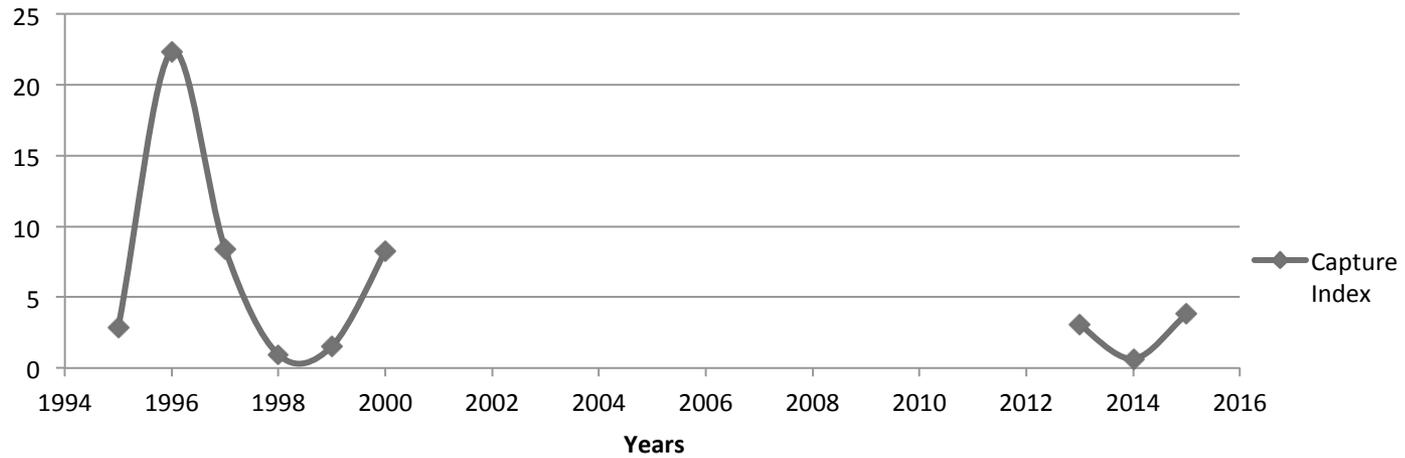
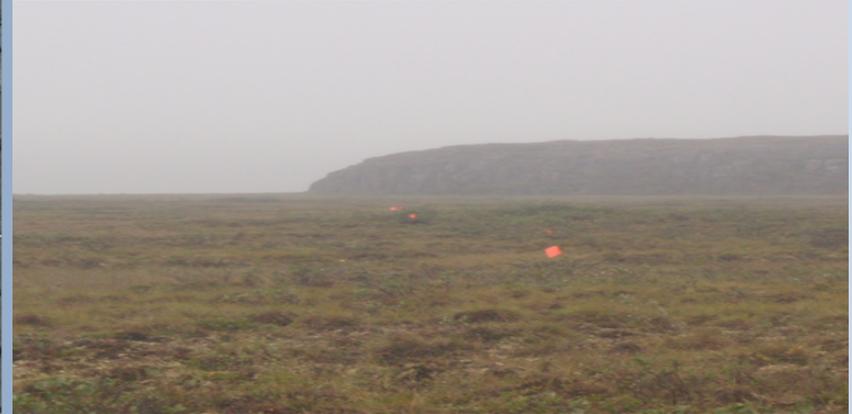


Numerous management plans for Nunavut wildlife species are currently being developed.

These are done in collaboration with co-management partners, other jurisdictions, management board, and elders' advises.



Research activities– Community monitoring



Capture Index for small mammal (lemmings and voles) from 1995 to 2001 and 2013 to 2015 at Heart Lake, Kugluktuk.

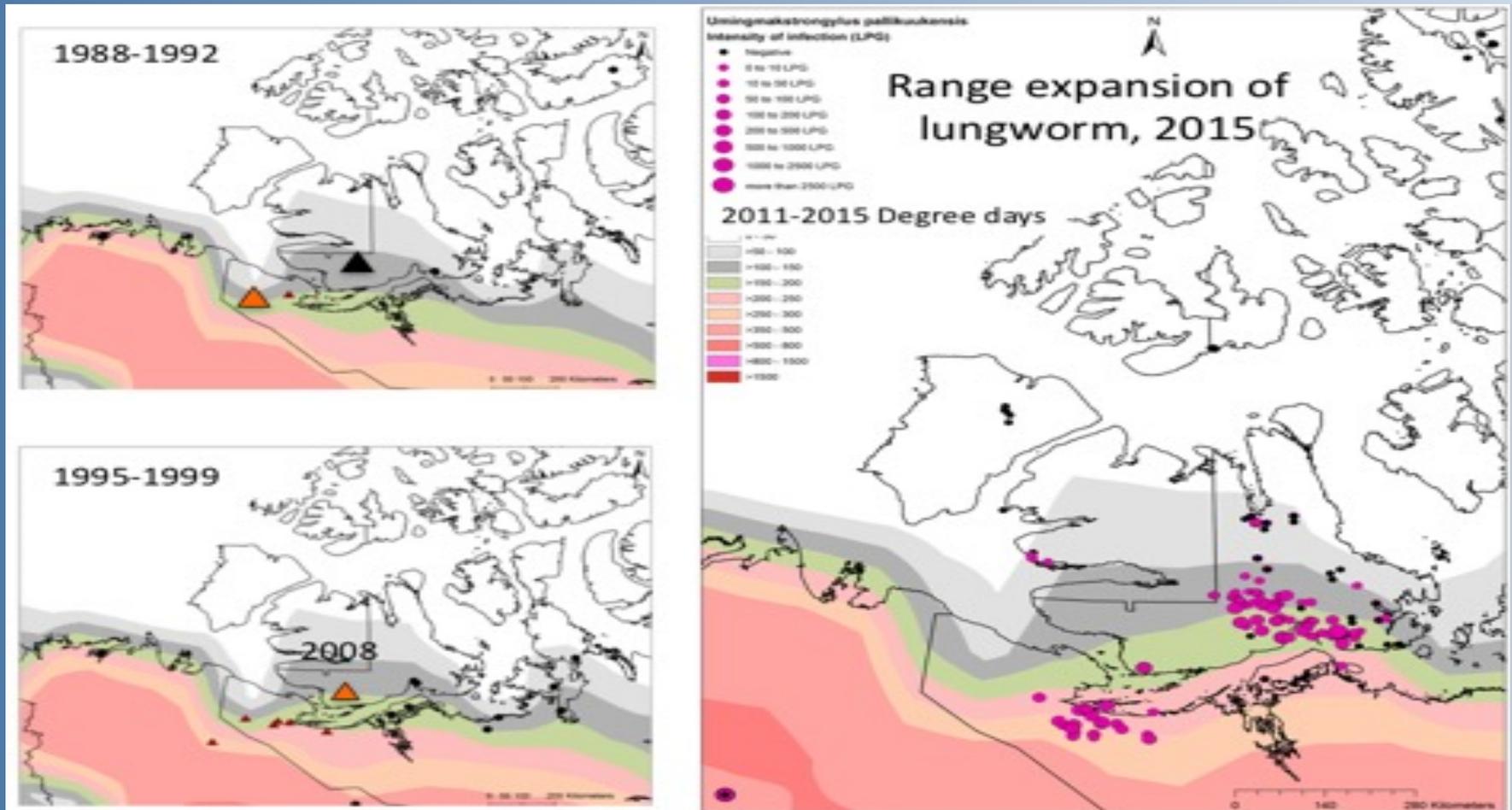
Research activities— Collaboration with academia

Fecal collection:

- Diet
- Genetics
- Pregnancy rate
- Lungworms range



Research activities– Collaboration with academia



Range expansion of muskox lungworm and its habitat suitability based on development degree-days from history (1988) to present (2015). The degree day modelling was done using the 3 hourly air temperature obtained by averaging the simulations of two global climate models, CCSM4 and GDFL CM2 – (Contribution and work of Pratap Kafle PhD Candidate, University of Calgary, Department of Ecosystem and Public Health).

Knowledge gaps— Coordinate research

From this species-by-species monitoring effort, there is a need to contextualise these observations into an ecosystemic approach, in aim to understand the holistic vision of the Inuit of the Arctic ecosystem.

There is a need to engage, at the conceptualization phase, the different GN biologists to add value to the current on going research projects and monitoring done hand in hand with the affected communities.

